REMARKS

Claims 1-14 were presented and examined. In response to the Office Action, Claim 1 is amended and Claims 4, 6 and 9 are cancelled. Claim 15 was previously cancelled. Claims 1-3, 5, 7, 8, 10-14 remain in the Application. Reconsideration of the pending claims is respectfully requested in view of the above amendments and the remarks that follow.

Claim Rejections under 35 U.S.C. §103

A. Claims 1-8 and 11 stand rejected under 35 U.S.C. §103 as being unpatentable over Sartorius, et al. ("Sartorius," *Dispersive Self Q-Switching in Self-Pulsating DFB Laser*, IEEE 1997) in view of U.S. Patent No. 6,018,541 issued to Huang ("Huang"). Applicants respectfully traverse this rejection.

Applicants amend Claim 1 to include the limitation of "wherein the strength and the phase of the feedback laser light are controlled to vary the frequency of an optical pulse produced by the laser diode." Support for this amendment can be found, for example, at page 9, line 6-7 and page 10, lines 9-10 of the specification. Sartorius in view of Huang does not teach or suggest this limitation. Further, Claim 1 is amended to include all of the limitations of dependent Claims 4, 6 and 9. The amendments emphasize structural features of the claimed invention, which are not disclosed by the cited references

The Examiner relies on Sartorius for disclosing single mode oscillation of DFB lasers. Sartorius discloses a 3-section DFB device (FIG. 1) that produces self-pulsation of laser current in the range of 10GHz. Sartorius does not specifically disclose that the DFB device is a complex-coupled device. The Examiner recognizes this deficiency in Sartorius, but relies on Huang for supplying the missing element. However, neither of the references discloses the claimed device that produces an optical pulse, the frequency of which is varied by controlling both the strength and the phase of the feedback laser light.

Sartorius does not disclose controlling both the strength and the phase of the feedback laser light to vary the frequency of the resulting optical pulse. Rather, Sartorius discloses adjusting only the phase current to tune the self-pulsation frequency (page 217, left column).

Huang does not supply this missing element. Thus, Sartorius in view of Huang does not teach each of the elements of amended Claim 1 and its dependent claims.

Further, none of the cited references discloses all of the amended limitations of Claim 1. To establish a prima facie case of obviousness, the Examiner must set forth "some articulated reasoning with some rational underpinning to support the conclusion of obviousness." See KSR International Co. v. Teleflex Inc., 82 USPQ2d 1385, 1396 (2007). Additionally, the Examiner must "identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does." *Id.*

In the rejection of Claims 4, 6 and 9 (which have been incorporated into Claim 1), the Examiner indicates that Huang discloses loss-coupling, Sartorius discloses sequential deposition of the layers in the active structure, and Oka discloses the butt-coupling and alignment of the guiding layer. However, the Examiner has not identified a reason that would have prompted a person of ordinary skill in the relevant field to combine the references to produce the claimed invention. Sartorius discloses self-pulsating DFB lasers. Huang discloses a loss-coupled grating structure in a DFB laser which does not have the recited self-mode lock property. Oka discloses a diffraction grating structure in a DFB laser which also does not have the recited self-mode lock property. The Examiner has not set forth a reason that would prompt a person of ordinary skill in the art to combine the DFB laser of Huang and Oka with that of Sartorius to produce the recited self-mode lock property. The Examiner has not set forth a reason to support the conclusion of obviousness that elements taken from non-self mode lock structures can be combined with a self-pulsating structure to maintain the self-pulsating property and/or the recited self-mode lock property. Thus, amended Claim 1 is non-obvious over the cited references.

Thus, for at least the foregoing reasons, the cited references do not teach or suggest each of the elements of Claims 1 and its dependent claims. Accordingly, withdrawal of the rejection of Claims 1-8 and 11 is requested.

B. Claims 9 and 10 stand rejected under 35 U.S.C. §103 as being unpatentable over Sartorius and Huang in view of U.S. Patent No. 5,177,758 to issued Oka, et al. ("Oka"). Applicants respectfully traverse this rejection.

Claim 9 is cancelled. Claim 10 depends from Claim 1 and incorporates the limitations thereof. Thus, for at least the reasons mentioned above in regard to Claim 1, Sartorius and Huang in view of Oka do not teach or suggest each of the elements of Claim 10. Accordingly, withdrawal of the rejection of Claim 10 is requested.

C. Claim 12 stands rejected under 35 U.S.C. §103 as being unpatentable over Sartorius and Huang in view of U.S. Patent No. 5,841,799 issued to Hiroki, et al. ("Hiroki"). Applicants respectfully traverse this rejection.

Claim 12 depends from Claim 1 and incorporates the limitations thereof. Thus, for at least the reasons mentioned above in regard to Claim 1, Sartorius and Huang do not teach or suggest each of the elements of Claim 12.

Hiroki does not teach or suggest the amended limitations in Claim 1. Thus, Claim 12 is non-obvious over the cited references. Accordingly, reconsideration and withdrawal of the § 103 rejection of Claim 12 are requested.

D. Claim 13 stands rejected under 35 U.S.C. §103 as being unpatentable over Sartorius and Huang in view of U.S. Patent No. 4,995,048 issued to Kuindersma, et al. ("Kuindersma"). Applicants respectfully traverse this rejection.

Claim 13 depends from Claim 1 and incorporates the limitations thereof. Thus, for at least the reasons mentioned above in regard to Claim 1, Sartorius and Huang do not teach or suggest each of the elements of Claim 13.

Kuindersma does not teach or suggest the amended limitations of the DFB laser. Thus, Claim 13 is non-obvious over the cited references. Accordingly, reconsideration and withdrawal of the § 103 rejection of Claim 13 are requested.

E. Claim 14 stands rejected under 35 U.S.C. §103 as being unpatentable over Sartorius and Huang in view of U.S. Patent No. 6,031,860 issued to Nitta, et al. ("Nitta"). Applicants respectfully traverse this rejection.

Claim 14 depends from Claim 1 and incorporates the limitations thereof. Thus, for at least the reasons mentioned above in regard to Claim 1, Sartorius and Huang do not teach or suggest each of the elements of Claim 14.

Nitta does not teach or suggest the amended limitations of the DFB laser. Thus, Claim 14 is non-obvious over the cited references. Accordingly, reconsideration and withdrawal of the §103 rejection of Claim 14 are requested.

CONCLUSION

In view of the foregoing, it is believed that all claims are now in condition for allowance and such action is earnestly solicited at the earliest possible date. If there are any additional fees due in connection with the filing of this response, please charge those fees to our Deposit Account No. 02-2666.

Respectfully submitted,

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I hereby certify that this correspondence is being submitted electronically via EFS Web on the date shown below.

Marilyn Bass February 19, 2009